

# Surgical Infection Prevention Project



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# Outline



- The problem of surgical infections
- Describe the national SIPP
- What we're doing at Baystate
- Our strategies for working with MDs

# Baystate Medical Center

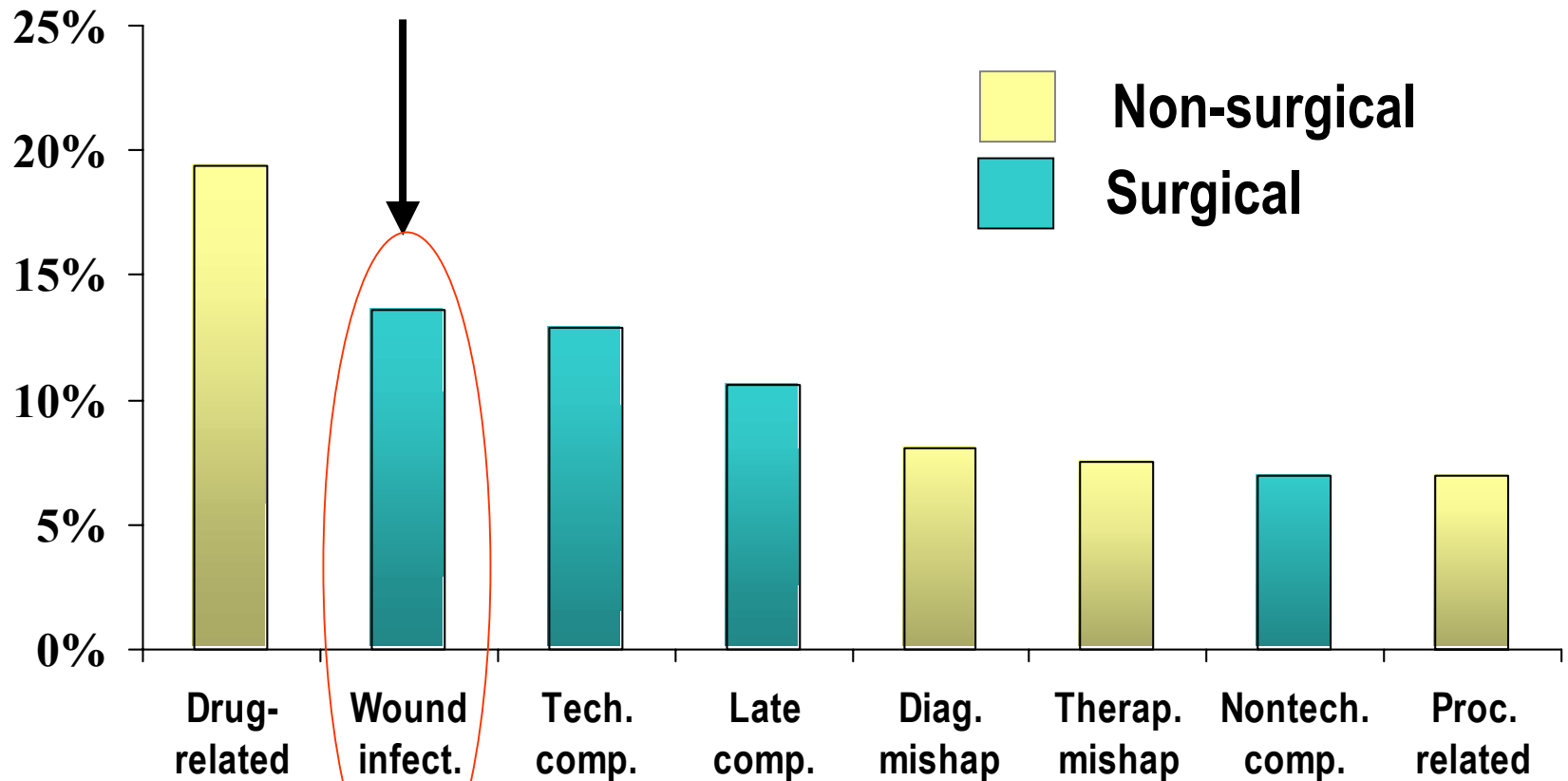


# Baystate Medical Center



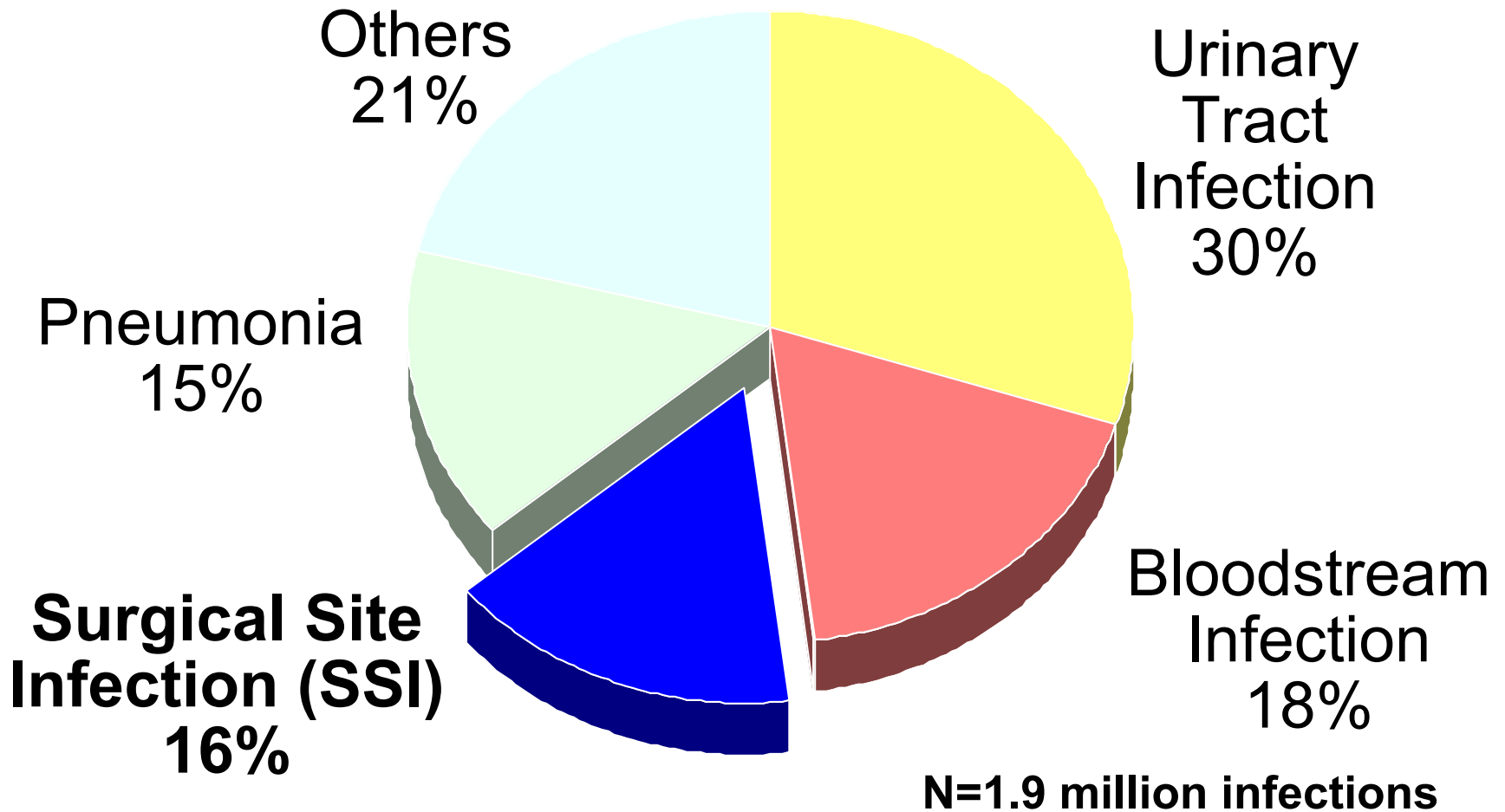
- 601 beds; 36,000 admissions/year; 12,000 Surgeries
- Referral center for Western New England pop of ~1M
- Western Campus of Tufts University School of Medicine
- Member CoTH, 9 residency programs, 244 residents
- 1200 member medical staff, 206 faculty MDs
- Flagship of the Baystate Health System
  - 3 hospitals
  - HMO ~ 125k members
  - Owned primary care network
  - VNA

# Proportion of Adverse Events Most Frequent Categories



***Brennan. N Engl J Med. 1991;324:370-376***

# Hospital-Acquired Infections: 1995





JANUARY 2003

**BEFORE  
YOU BUY  
CHICKEN  
READ THIS  
(PAGE 24)**

# Consumer Reports

[www.ConsumerReports.org](http://www.ConsumerReports.org)

## How safe is your hospital



- **WHAT YOU NEED TO KNOW THAT HOSPITALS DON'T REVEAL**
- **21,000 READERS RATE THEIR STAYS**
- **DECODING YOUR BILL**



# Epidemiology and Impact



- SSIs occur in 2-5% of clean surgeries
- Are associated with worse outcomes;  
Patients who develop SSI are:
  - 60% more likely to spend time in an ICU
  - 5 times as likely to be readmitted
  - Have a mortality rate twice that of noninfected patients
  - An average of 7 days additional LOS
  - An average of \$3000 additional costs
- 40-60% of these infections are preventable



# **SURGICAL INFECTION PREVENTION**

## *Medicare Quality Improvement Project*

<b>Round 1</b> <b>August 2002</b>	<b>Round 2</b> <b>November 2002</b>	<b>Round 3</b> <b>February 2003</b>
Arkansas, Colorado, Delaware, Illinois, Kansas, Maine, Mississippi, Montana, Nevada, New Hampshire, New York, Ohio, Oregon, Pennsylvania, Tennessee, Utah, Vermont, West Virginia, & Wyoming	Alabama, Alaska, Arizona, California, Connecticut, District of Columbia, Florida, Georgia, Idaho, Louisiana, Maryland, Michigan, Minnesota, <b>New Jersey</b> , New Mexico, Rhode Island, and Washington	Hawaii, Indiana, Iowa, Kentucky, Massachusetts, Missouri, Nebraska, North Carolina, North Dakota, Oklahoma, Puerto Rico, South Carolina, South Dakota, Texas, Virgin Islands, Virginia, and Wisconsin

# Hospital Care National Performance Measures Endorsed

## *NQF Establishes Voluntary Consensus Standards for Measuring the Quality of Hospital Care*

WASHINGTON, DC/October 8, 2002/ – the National Quality Forum (NQF) today announced that it had approved the first portion of the first set of national voluntary consensus standards for measuring the quality of hospital care. These measures will permit consumers, providers, purchasers, and quality improvement professionals to evaluate and compare the quality of care in general acute care hospitals across the nation using a standard set of measures. The consensus standards in the this first group cover six areas: cardiac conditions (acute coronary syndrome or “heart attack” and congestive heart failure), surgical complications, pneumonia, pregnancy/childbirth/neonatal-related, pediatric-related, and smoking cessation. The remainder of the measures that will complete this initial set of national voluntary consensus standards for hospital care should be approved by the NQF in December 2002 or January 2003.

# AHRQ PATIENT SAFETY INDICATORS


- Complications of anesthesia
- Death in low mortality DRGs
- Decubitus ulcer
- Failure to rescue
- Foreign body left in during procedure
- Iatrogenic pneumothorax
- Infection due to medical care
- Postoperative hip fracture
- Postoperative hemorrhage or hematoma
- Postoperative physiologic and metabolic derangements
- Postoperative respiratory failure
- Postoperative PE or DVT
- Postoperative sepsis
- Technical difficulty with procedure
- Transfusion reaction
- Postoperative wound dehiscence
- Birth trauma
- Obstetric trauma
- Obstetric trauma – cesarean delivery

# SIPP Goals



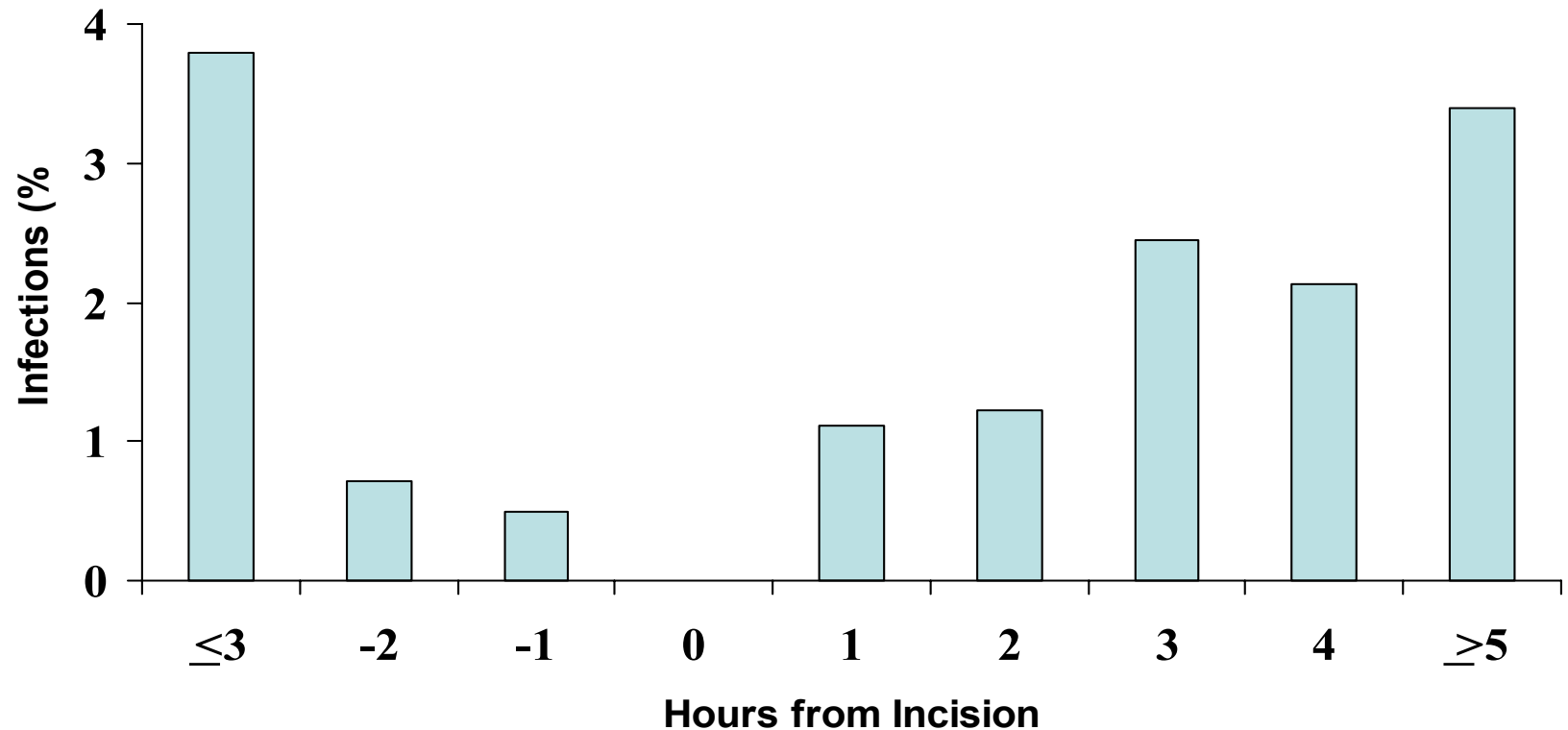
- Reduce morbidity and mortality associated with surgical infections
  - Double the number of cases between SSIs
  - Reduce preventable SSI by 90%

# Objectives

- 
1. Achieve 100% compliance with appropriate selection and timing of antibiotics
    - Abx are initiated within 60 minutes of incision
    - Abx are consistent with guideline recc's
    - Abx are discontinued within 24h after surgery
  2. Improve perioperative glycemic control
  3. Reduce the incidence of perioperative hypothermia

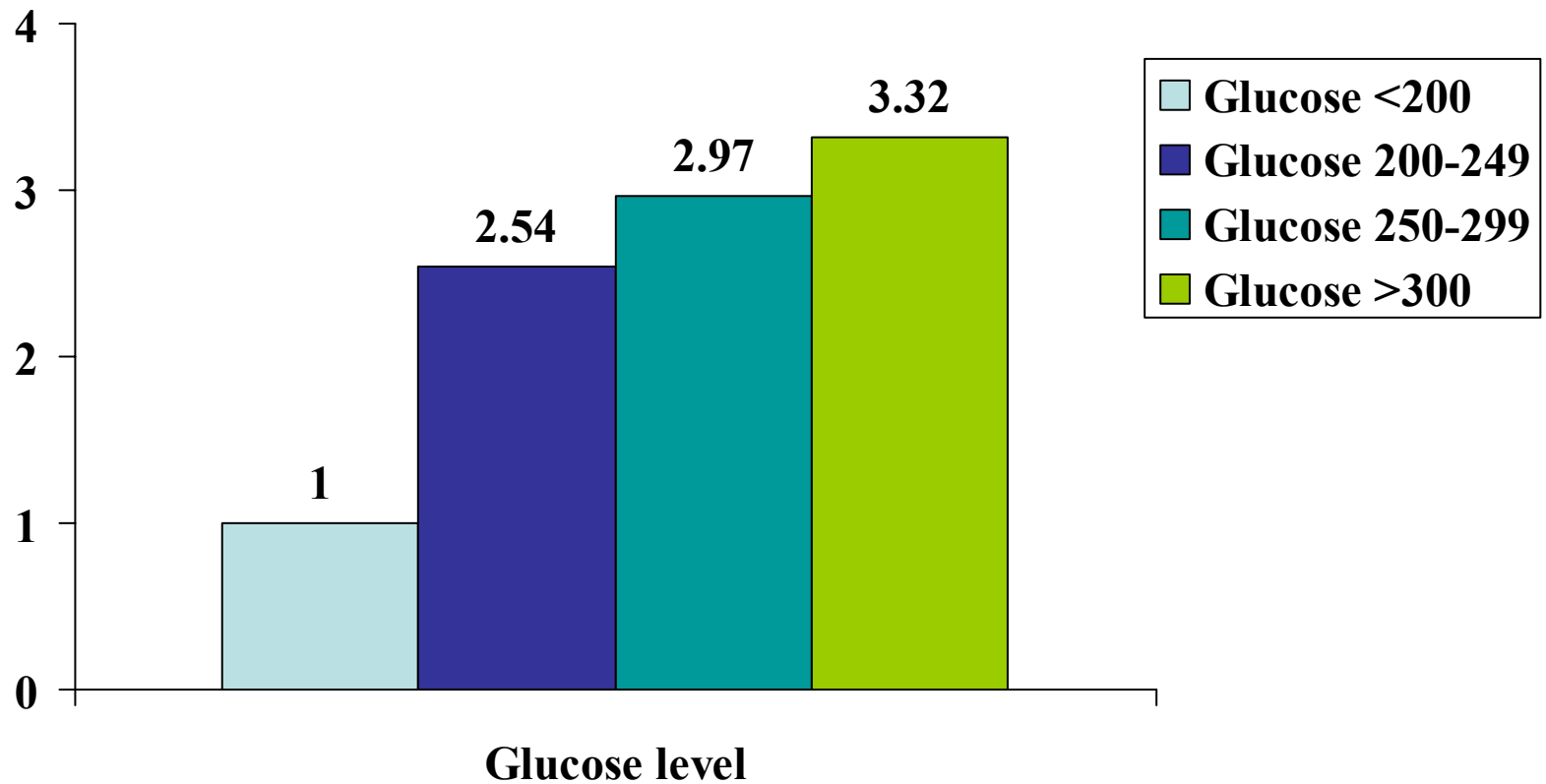
# Prophylactic Antibiotics

## Timing of Administration and Rate of Infection





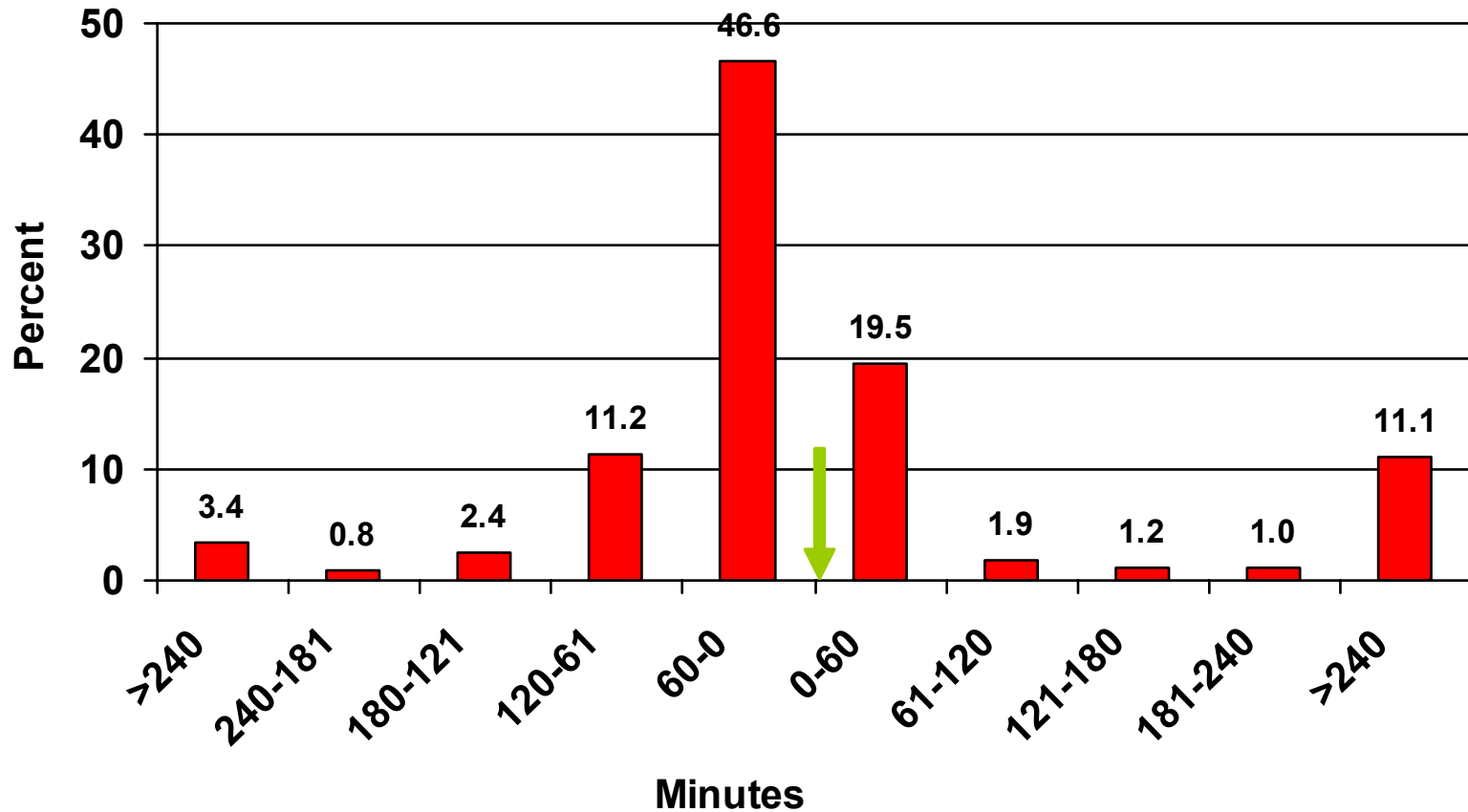
# Glycemic Control and SSIs



ICHE 2001; 22:607-12

# National Results

## *Antibiotic Timing*



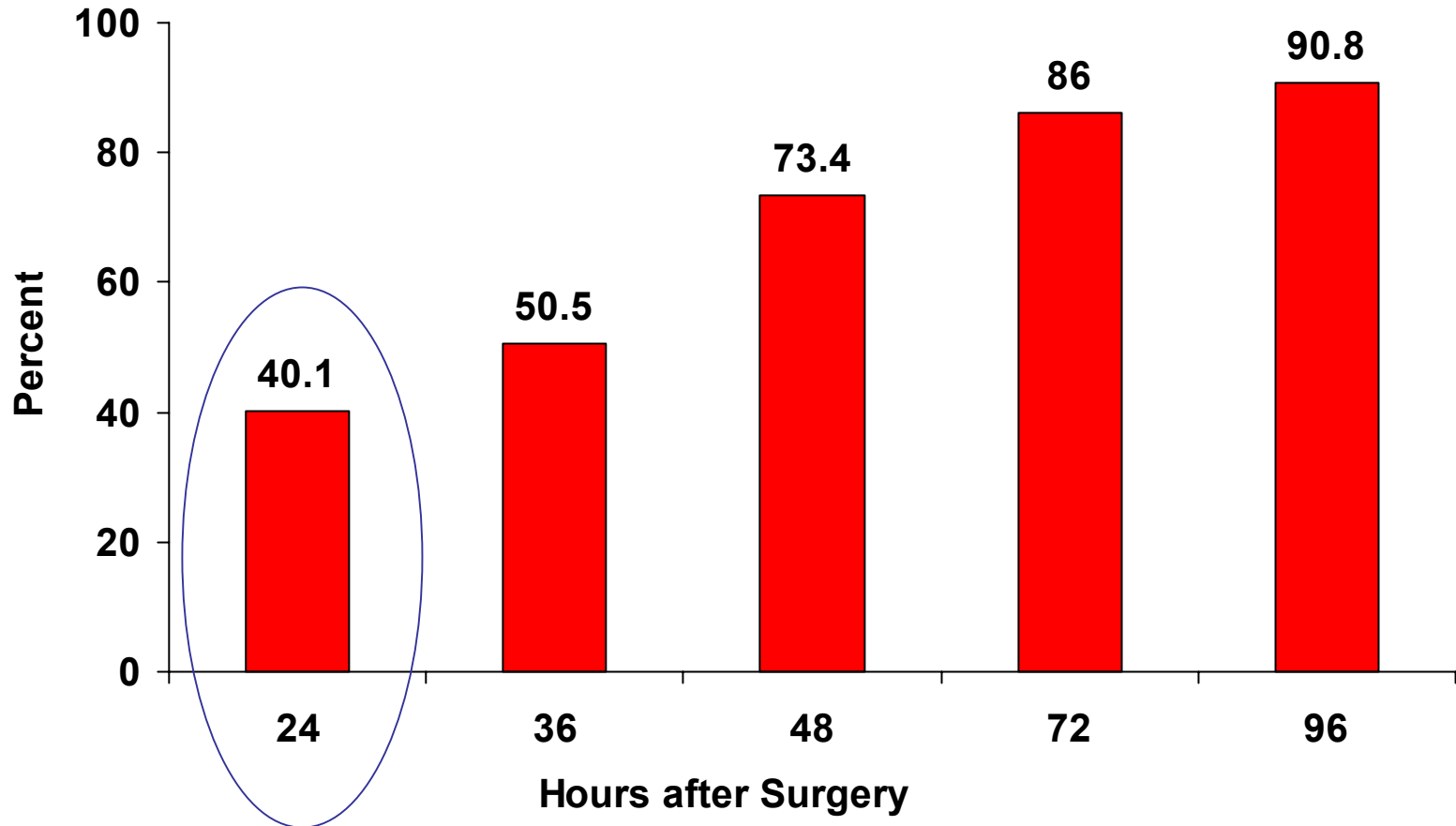
# National Results

## *Antibiotic Choice Consistent with Guidelines*

Performance Measure #2	%
Overall Result	92.0
By NNIS Class	
0	92.3
1	92.1
2	91.7
3	68.8

# National Results

## *Antibiotic Discontinuation*



# Baystate's Pilot Population



- Cardiac Surgery (749 procedures/year)
  - **4 Surgeons**
- Vascular Surgery (326 procedures/year)
  - **5 Surgeons**

# Baseline Performance : March 2002

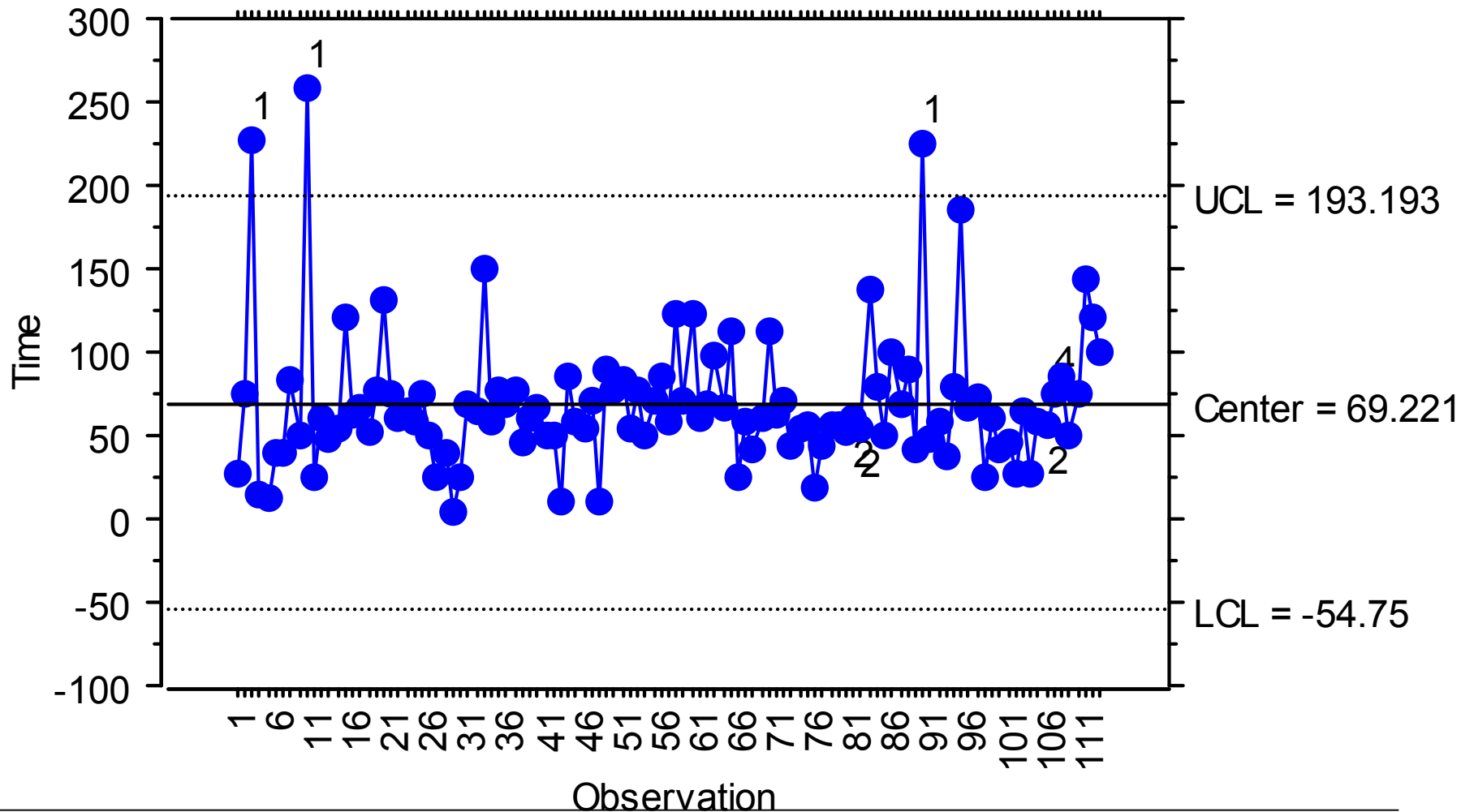


- Abx  $\leq 60$  minutes = 29%
- Appropriate Abx choice = 82%
- Abx d/c'd  $\leq 24$ h = 11%
- Normothermic ( $\geq 36$ ) on admit to PACU = 54%
- % of Pts with glucose  $> 200$  = 32 %

We had an opportunity to improve!



# Antibiotic Timing in 111 Consecutive Surgical Patients



# SIPP Team



- “Core” Project Team
  - Senior Leader: VP of Quality
  - Operational Leader: Nurse Manager of OR
  - Day to Day Leader: QI Nurse
  - Physician Champion: Chief of Cardiac Surgery
- Key stakeholders.....the SIPP Team
  - CT surgery, Vascular Surgery, Anesthesiology
  - ID, Endocrine
  - OR, PACU, CICU Nursing
  - Pharmacy
  - Infection Control

# Cardiac Surgery OR Team



# Project Planning



- Develop explicit goals and objectives
  - Write them down on paper
- Incorporate into BHS annual strategic plan
  - Tie to compensation of senior leadership
- IHI – “Rapid Cycle PDSA”
  - We can’t wait to get things perfect
  - Focus on small tests of change
- Monthly “Senior Leader Report”
  - Provides focus for team efforts
- Publicize and celebrate successes
  - Newsletters, Staff meetings, Grand rounds,

# Improving Antibiotic Timing the “Rapid Cycle PDSA”-way

- Presented baseline performance data to team
- Shared evidence-based resources from project web site
- Began changing administration and documentation process
- Starting point: Pre-Op holding RNs administers ABx “on-call”
- Steps
  - Anesthesiologists try administering antibiotic in OR
  - Anesthesiologists begin documenting administration
  - Highlight importance of 60 minutes timing window
  - Revised order sets to change “on call” to “anesthesia to give in OR within 60 minutes of incision”
  - Project anesthesiologist begins discussing outlier cases

# Small Tests of Change - continued

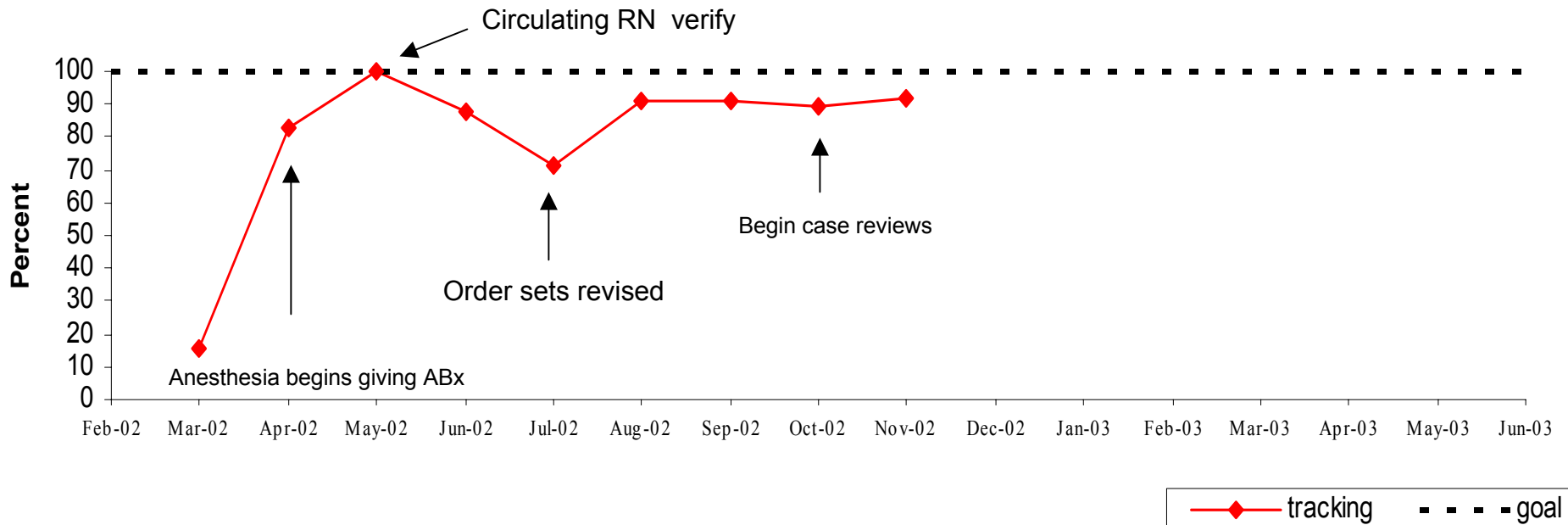


- Circulating RN verifies that MD has given initial antibiotic
- Circulating RN reminds MD to re-dose
- Begin using OR “count board” to track timing
- Shared results monthly with OR teams
- Work with pharmacy to standardize deliver to of ABx to OR



# On-time prophylactic antibiotic administration

**P1. Percent of cardiac surgical cases with on-time prophylactic antibiotic administration**



RE.  
ENGELMAN, RICHARD MD

MD CARDIAC SURGERY PRE-OP ORDERS

9

TO BE GIVEN BY ANESTHESIA PRE-OP  
CEFAZOLIN 1GM IN D5W 50ML, IVPB

-----  
IF TYPE I HYPERSENSITIVITY REACTION  
TO PENICILLIN OR CEPHALOSPORINS:

TO BE GIVEN BY ANESTHESIA PRE-OP  
GENTAMICIN 60MG IN NS 100ML, IVPB

GENTAMICIN 80MG IN NS 100ML, IVPB

CLINDAMYCIN 600MG IN D5W 50ML, IVPB

►BACK

►INDEX

RETURN

MASTER

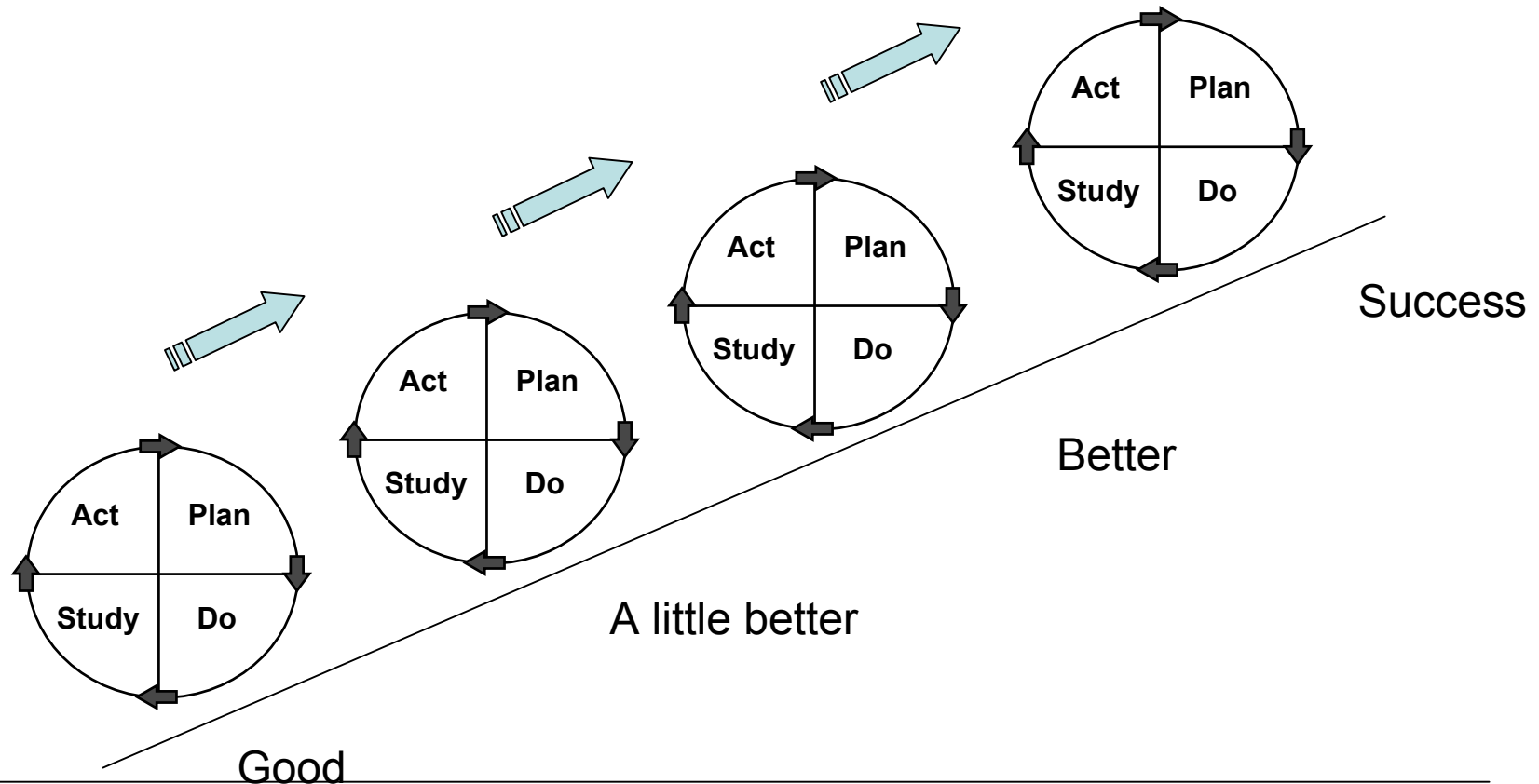
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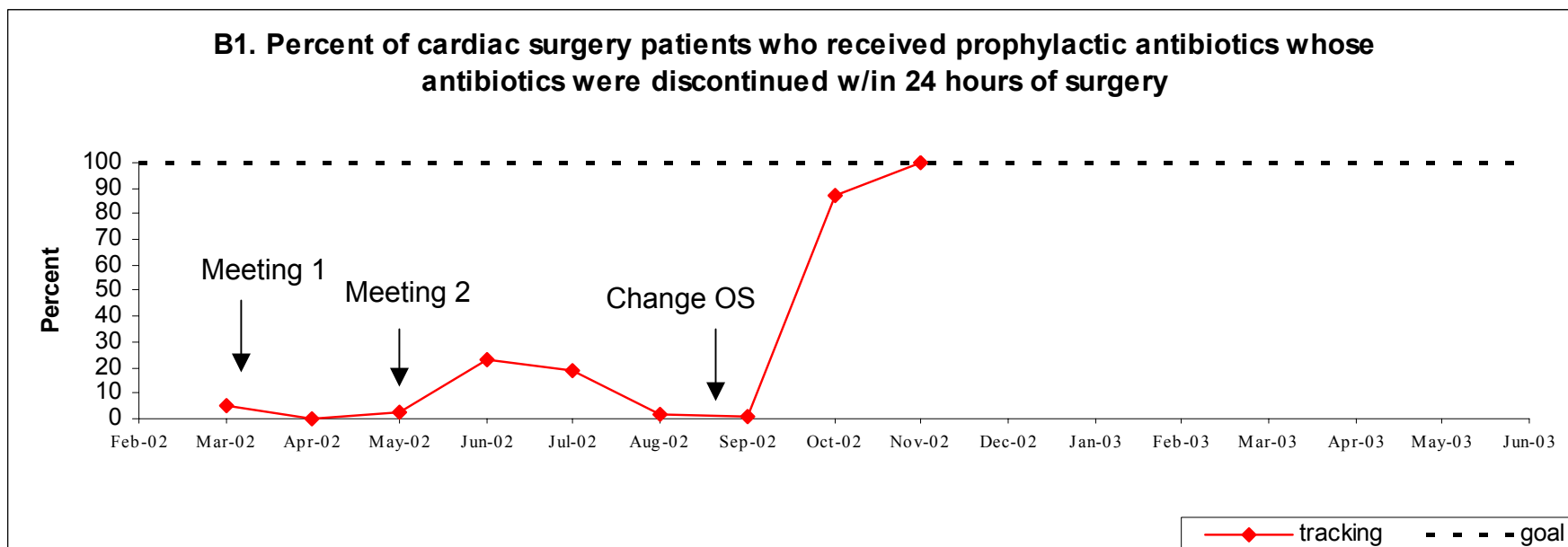
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RETRIEVE

# Small Tests of Change - Rapid Cycle PDSA



# Antibiotics discontinued within 24 hours



# THE SCORE SHEET



**Our AIM is patient safety**



## THE SCORE (% TO GOAL)

Months	1	2	3	4	5	6	7	8	9	10	11	12
Antibiotic Timing	100	88	76	88	88	90						
Temperature	40	70	82	95	96	98						
Glucose Control	20	0	30	35	40	55						

**Let's Hit our Mark! 100% Compliant across the Score Board!!**

# Engaging Physicians



- Focus on quality and safety issues
  - Don't lead with cost savings
- Participate in multi-hospital initiatives
  - QIO sponsored
  - IHI sponsored
  - GPO sponsored
  - Specialty societies
- Get the support of department chairs
  - Incentives for quality and med management



# Engaging Physicians



- Don't underestimate the impact of clinical leaders
  - Leading the multi-hospital collaboratives
  - Clinical champions within your own institution
- Portray “opportunities” in meaningful terms
  - Benchmarking can be helpful
  - Potential lives saved or infections prevented is even better
- Develop a thick skin
  - Doctors are angry these days
  - I don't need to tell you this



Of the 66 acute care hospitals in Massachusetts 60 lost money last year....

For more information.....



*National*

**SURGICAL INFECTION PREVENTION**

*Medicare Quality Improvement Project*

[www.surgicalinfectionprevention.org](http://www.surgicalinfectionprevention.org)